

What is claimed is:

1. A method for sending broadcast messages in a communication system comprising at least one network, the at least one network comprising nodes interconnected by point-to-point links, the method comprising the steps of:

- s a) sending a broadcast message to nodes in the at least one network, and
- b) then receiving the broadcast message by nodes in the at least one network,  
**characterized by the additional steps of:**
- c) a node receiving the broadcast message deciding whether to send or not to send the broadcast message to other nodes in the at least one network, the deciding based on
- 10 previously received messages in the node,
- d) in the case where the node decides to send the broadcast message, sending from the node the broadcast message to other nodes in the at least one network,
- e) in the case where the node decides not to send the broadcast message, instead sending
- 15 broadcast message is to be cancelled, to other nodes in the at least one network to avoid redundant distribution of the broadcast message, and
- f) in the case of d) receiving the broadcast message by nodes, and then performing step c),
- g) in the case of e) receiving the cancellation of broadcast message by nodes,
- 20 h) the nodes of step g) stopping sending the broadcast message to nodes in the at least one network, whereby redundant distribution of broadcast messages in the communication system is reduced.

2. A method according to claim 1, **characterized in** that in step h) the nodes of step g) also send from the nodes the cancellation of broadcast message to nodes in the at least  
25 one network.

3. A method according to claim 1, **characterized in** that in step e) the cancellation of broadcast message is made to include the received broadcast message

4. A method according to claim 1 in the case where the communication system comprises at least two networks, which are tied together by at least one forwarding node,  
30 each forwarding node connected in the at least two networks, characterized in that sending messages is done from forwarding nodes in one network to other nodes in another network.

5. A method according to claim 4, characterised in that sending the cancellation of broadcast message in step e) is done in the forwarding nodes.

35 6. A method according to claim 1, characterised in that an identity of the received broadcast message is stored in the receiving node in step b).

7. A method according to claim 1, characterised in that sending the cancellation of broadcast message in step e) is done for a particular broadcast message.

8. A method according to claim 1, characterised in that the decision is made in step  
40 d) when the receiving node has sent or intends to send a reply to the received broadcast

message.

9. A method according to claim 1, characterised in that the identity of the broadcast message is included in the cancellation of broadcast message in step e).

10. A method according to claim 1, characterised in that a source address and a sequence number are included in the cancellation of broadcast message to ensure loop-free delivery of the message in step e) when sending of the cancellation of broadcast message.

11. A method according to claim 1, characterised in that in steps e) and h) a memory is searched for the identity of the broadcast message, as found in the cancellation of broadcast message in step h).

12. A method according to claim 11, characterised by finding the identity of the broadcast message in the cancellation of broadcast message in the cache or like, in step h) and discarding the cancellation of broadcast message if it is found.

13. A method according to claim 11, characterised by storing the identity of the broadcast message in the cancellation of broadcast message in a cache memory or the like in the receiving node in step h), when the received the identity of the broadcast message in the cancellation broadcast message is not found in the cache memory or the like.

14. A method according to claim 11, characterised by storing the identity of the broadcast message in the cancellation broadcast message in the receiving node in step h), when the identity of the broadcast message in the cancellation of broadcast message is not found in the cache memory or the like.

15. A method according to claim 11, characterised by avoiding the cancellation of broadcast messages to be forwarded to other neighbouring forwarding nodes connected to the network over which the cancellation of broadcast message was received in step h), when the identity of the broadcast message in the cancellation broadcast message is not found in the cache memory or the like.

16. A method according to claim 1, characterised in that the sending of all messages within a network goes through a master node, and the remaining nodes in the network are slave nodes connected to the master node.

17. A method according to any of claims 9 and 14, characterised by forwarding the cancellation of broadcast message to other neighbouring forwarding nodes connected to the same network, which takes place via the master node of the network if the node itself is not a master node in step h), when the identity of the broadcast message in the cancellation broadcast message is not found in the cache memory or the like.

18. A method according to any of claims 16 - 17, characterised by no sending of a cancellation of broadcast message to a master node if there are no other forwarding nodes in the network to send to.

19. A method according to any of claims 16 - 18, characterised in that when receiving a cancellation of broadcast message in a master node before having sent the broadcast message to all node slave units, the sending of the broadcast messages to the

remaining slaves is interrupted and instead the cancellation of broadcast message is sent to the forwarding nodes.

20. A method according to claim 1, characterised by giving higher priority to the sending of the cancellation of broadcast message than sending the broadcast messages.

5 21. A method according to claim 1, characterised in that a reply to the broadcast message and/or the cancellation of broadcast message is sent from a node on behalf of another node.

22. A method according to claim 1, characterised in that after step b), checking the same broadcast message or a cancellation of broadcast message including the identity of  
10 the concerned broadcast message has been received before, and acting in accordance with the situation checked.

23. A method according to claim 22, characterised by discarding the broadcast message considering that the same broadcast message or a cancellation of broadcast message including the identity of the concerned broadcast message has been received  
15 before.

24. A method according to claim 22, characterised by deciding whether further distribution would be redundant in accordance with step d) when considering that the same broadcast message or the cancellation of broadcast message including the identity of the concerned broadcast message has not been received before.

20 25. A method according to claim 1, characterised in that in receiving the cancellation of broadcast message in step h), checking whether the cancellation of broadcast message has already been received.

26. A method according to claim 25, characterised in that in receiving the cancellation of broadcast message in step h), checking whether the broadcast message  
25 already has been forwarded.

27. A method according to claim 26, characterised by checking whether the concerned broadcast message has already been received and forwarded to all connected nodes in previous step.

28. A method according to claim 27, characterised by storing the identity of the  
30 cancellation of broadcast message, and forwarding the cancellation of broadcast message to other forwarding nodes, considering whether the concerned broadcast message has not been forwarded to all connected nodes.

29. A method according to claim 27, characterised in that the discarding the cancellation of broadcast message is made considering whether the concerned broadcast  
35 message has been forwarded to all connected nodes.

30. A method according to claim 29, characterised by interrupting the forwarding of the broadcast message and storing the identity of the cancellation of broadcast message, when considering whether the concerned broadcast message has not been forwarded to all connected nodes.

40 31. A method according to claim 30, characterised by forwarding the cancellation of

broadcast message to the forwarding nodes to which the concerned broadcast message has not been sent.

32. A communication system comprising one or more networks, each network consisting of nodes interconnected by point-to-point links, the system supporting  
5 distribution of broadcast messages to nodes in the networks, comprising means for forwarding the broadcast message to nodes in the system, means for receiving a broadcast message at a node in the communication system, characterised by:

- means for deciding whether to continue to send the broadcast message to other nodes, at the receiving node,
- 10 - means for avoiding redundant distribution of the broadcast message,
- means for sending a cancellation of broadcast message from the nodes in the system to the other nodes including the broadcast message to be cancelled, and
- means for handling the cancellation of broadcast message at the nodes.

33. A communication system according to claim 32, the communication system  
15 comprising two or more networks, which are tied together, characterised in that some of the nodes are forwarding nodes, and that they are able to forward the messages from one of the networks to another.

34. A communication system according to claim 32, characterised in that the means  
20 for sending the cancellation of broadcast message including means for sending a reply message to the broadcast message to be cancelled by the cancellation of broadcast message.

35. A communication system according to claim 32, characterised by means for storing identities of the broadcast messages and/or the cancellation of broadcast messages in the nodes.

25 36. A communication system according to claim 32, characterised in that the networks form a scatternet according to the Bluetooth specification.

37. A communication system according to claim 36, characterised in that the scatternet consists of piconets tied together by forwarding nodes.

38. A communication system according to claim 37, characterised in that each  
30 piconet includes one master and one or more slaves, the master being a forwarding node forwarding messages between the slaves.

39. A communication system according to claim 36 or 37, characterised in that there is only one network, and the network is a piconet consisting of one master and two or more slaves.

35 40. A communication system according to claim 37, characterised in that the forwarding nodes include master nodes.

41. A communication system according to claim 35 or 38, characterised in that the forwarding nodes do not include any master nodes, and the forwarding nodes forward the cancellation of broadcast messages via a lower protocol layer.

40 42. A computer program product directly loadable into the internal memory of a

43. A computer program product stored on a computer usable medium, comprising a readable program means for causing a computer to control the execution of steps of the methods performed by any block or device according to any of the preceding claims.